

REMARKS

Applicant now responds to the outstanding rejections that Applicant inadvertently failed to address in its August 31, 2001 Office Action.

Applicant has deleted the original abstract and replaced it with a new abstract.

Applicant has canceled claims 77-81.

Claims 74, 75, and 76 stand rejected under 35 USC §101. Each claim 74, 75, and 76 is amended such that the plants, seeds, or progeny recited therein contain the specific vector referred to in each of the respective claims. Thus, these amended claims are no longer directed to plants, seeds, or progeny that would be found in nature.

Claims 59 and 60 stand rejected under 35 USC §112, second paragraph, for improper Markush terminology. Applicant appreciates the Examiner's suggestions. Amended claims 59 and 60 deleted, in line 5, the semi-colon and substituted a coma. Further, the amended claims 59 and 60 insert the word "or" immediately prior to the ending phrase "the pTA7001 inducible promoter".

Applicant's August 31, 2001 Office Action Reply Under 37 C.F.R. §1.111 canceled claims 47 and 48 and replaced it with new claim 83. Applicant respectfully submits that new claim 83, and Applicant's remarks set forth in the August 31, 2001 Reply, successfully overcome the Examiner's rejections that are set forth in numbered paragraphs 9 and 10 of the June 19, 2001 Office Action.

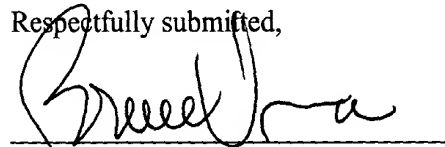
The Examiner further states that DNA sequences that encode the amino acid sequence of SEQ ID NO. 21 are not full-length, and that they must therefore be removed from the pending claims. Applicant recognizes that the amino acid sequence of SEQ ID NO. 21 is truncated. However, Applicant respectfully submits that SEQ ID NO. 21 contains all the highly conserved domains necessary for kinase activity, whereas the truncated portion contains domain X, which is not conserved across species and which has no known function, and domain XI thought to provide some stability to the kinase molecule. For purposes of illustration and support, Applicant includes herewith Attachments A and B. Attachment A shows SEQ ID NO. 21 and highlights the subdomains it contains, including the kinase domain, a proline box, a transmembrane domain, and a protein binding domain (which position is likely across several domains), and the catalytic and activation loops. Attachment B, shows the protein kinase catalytic domains: I, II, III, VIb, VII/VIII, IX, X, and XI. SEQ ID NO. 21 lacks the end subdomains X and XI. Subdomain X is not highly conserved among kinases proteins, while

subdomain XI appears to have some effect on protein stability. See page 10 column 2 of, Schenk et al. *Signal perception and transduction: the role of protein kinases*, Biochimica et Biophysica Acta 1449 1999 1-24 enclosed herewith. Although domain XI may provide a stability function, its absence in SEQ ID NO. 21 doesn't necessarily negate the kinase activity of SEQ ID NO. 21. Furthermore, because domain X is not highly conserved among different kinase proteins, it is unlikely to serve as an essential domain to any. Thus, in view of the presence of all the highly conserved and functional domains in SEQ ID NO. 21, and the absence of domains that are not likely to have a significant effect on kinase activity, Applicant respectfully submits that SEQ ID NOS. 20 and 21 are allowable subject matter, and requests that the rejection of the pending independent claims on this basis of the presence of these sequences be withdrawn. Attachment C is included for reference purposes, and shows the introns and exons (highlighted) of DNA sequence SEQ ID NO. 20.

In view of the above amendments and remarks, it is submitted that the application is now ready for allowance. If any additional information is needed, the Examiner is invited to call the undersigned attorney at (919) 541-8614.

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Respectfully submitted,



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Date: October 19, 2001

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Please delete the Abstract and replace it with the following new Abstract.

A method and DNA sequence encoding a protein kinase for producing apomictic seeds, the method comprising the steps of transforming plant material with a nucleotide sequence encoding a protein the presence of which in a cell, or membrane thereof, renders the cell embryogenic, regenerating the thus transformed material into plants, or carpel containing parts thereof, and expressing the sequence in the vicinity of the embryo sac. The DNA sequence encodes a leucine repeat rich receptor kinase, which preferably is modified to the extent that the ligand-binding domain is deleted or functionally inactivated.

In the claims:

Please cancel claims 77-81.

Please amend claims 59, 60, 64, and 74-76 as follows:

59. (Amended) An expression vector according to claim 57, wherein the promoter is one of the following: a promoter which regulates expression of SERK genes *in planta*, the carrot chitinase DcEP3-1 gene promoter, the *Arabidopsis* AtChitIV gene promoter, the *Arabidopsis* LTP-1 gene promoter, the *Arabidopsis* bel-1 gene promoter, the petunia fbp-7 gene promoter, the *Arabidopsis* ANT gene promoter, the promoter of the O126 gene from *Phalaenopsis*[:], the *Arabidopsis* DMC1 promoter, or the pTA7001 inducible promoter.

60. (Amended) An expression vector according to claim 58, wherein the promoter is one of the following: a promoter which regulates expression of SERK genes *in planta*, the carrot chitinase DcEP3-1 gene promoter, the *Arabidopsis* AtChitIV gene promoter, the *Arabidopsis* LTP-1 gene promoter, the *Arabidopsis* bel-1 gene promoter, the petunia fbp-7 gene promoter, the *Arabidopsis* ANT gene promoter, the promoter of the O126 gene from *Phalaenopsis*[:], the *Arabidopsis* DMC1 promoter, or the pTA7001 inducible promoter.

63. (Amended) The method according to claim 61, wherein the kinase [lacks a functional ligand binding domain but] comprises a proline box, a transmembrane domain, a kinase domain and a protein binding domain.

74. (Amended) Plants transformed with the vector of claim 55, or the seeds or progeny of such plants, wherein said seeds or progeny contain said vector of claim 55.

75. (Amended) Plants transformed with the vector of claim 56, or the seeds or progeny of such plants, wherein said seeds or progeny contain said vector of claim 56.

76. (Amended) Plants which are derived from the seeds as produced by the method of claim 61, wherein said plants contain said vector according to claim 55.